

## INFORMATION SHEET

ORDER NO. R5-2010-\_\_\_\_\_  
SAGE CANYON, LLC  
SOMERSTON WINERY  
NAPA COUNTY

Sage Canyon, LLC (hereafter Discharger) owns approximately 1,625 acres of land located at 3450 Sage Canyon Road in Napa County. Approximately 205 acres are planted with grape vines. The Discharger plans to build a new wine processing and storage facility known as Somerston Winery on its property. The winery will be a full crushing facility with an annual production of 150,000 gallons of wine and 909 tons of grapes crushed. The winery will include a tasting room with a commercial kitchen. Domestic wastewater will be treated separately from the winery wastewater. A septic tank and leach field system regulated by the Napa County Environmental Management Department will be used to treat the domestic wastewater. A water softener is planned for the winery to treat the supply water. Brine flush wastewater generated from the softener will be temporarily stored in a storage tank separate from the winery wastewater to be collected and transported off site for proper disposal.

The winery will generate approximately 1.2 million gallons (Mgal) of process wastewater per year. The treatment process will include the following: an influent pumping station, rotary screen, equalization tank, pH adjustment system, self-cleaning fine screen, contact tank, heat exchanger, anaerobic filters, effluent pumping station, final filtration process, and barn pumping station. Treated wastewater will be pumped to a 100,000 gallon capacity above ground storage tank to be later distributed to the land application areas (LAAs) through the existing irrigation system.

### Report of Waste Discharge Submittal

A Report of Waste Discharge (RWD) dated 26 February 2009 was submitted for treatment and land application of wastewater generated at the Somerston Winery. The Discharger submitted additional information on 24 August 2009 and 28 August 2009 in response to the Central Valley Water Board's Incomplete Report of Waste Discharger letter dated 9 June 2009. In the 7 April 2010, *Somerston Winery RWD Response to Comments* submitted by DJH Engineering (DJH) of Placerville on behalf of the Discharger, a different treatment and storage system was proposed. Meetings to discuss the Discharger's proposal were held on 1 March, 15 June and 29 June 2010. Supplemental information was submitted during the meetings with the Central Valley Water Board and via multiple email correspondence during the time period of 12 June and 30 June 2010.

### Wastewater Generation

Wastewater is generated from the following: water softener regeneration, crushing, fermentation, pressing, bulk wine storage, barrel storage, spillage, equipment cleaning, and screening or process wastewater stream.

The treatment facility was designed for the following flow rates:

- Maximum daily process wastewater flow is 15,000 gpd.
- Maximum annual process wastewater flow is 1.2 Mgal.

The WDRs will allow a maximum discharge rate to the land application area not to exceed 280,000 gallons per month. In addition, the discharge to the land application area shall not exceed an annual total of 1.2 million gallons. These discharge flow limits was based on the revised water balance submitted by the discharger and will ensure the required amount of storage capacity during the wet months when land application with treated wastewater is not feasible.

#### Land Application Areas

Seven LAAs are available for wastewater application with usable land application acreage totaling 104 acres planted with grape vines. Treated wastewater will be applied by drip system. Irrigation operations will be controlled by a work order system that will specify irrigation application rates and designate the LAA locations to receive them. The irrigation pump will be controlled by a timer to prevent over application of an area.

On an annual average basis, treated wastewater will provide approximately 6.9 percent of the total irrigation supply. The annual irrigation needs of the vines are approximately 13.0 Mgal. The Discharger anticipates mixing treated wastewater with supplemental irrigation water on an as needed basis during the months of March, April, May, June, July, August, September, October, November, and December. The Discharger states Irrigation during the months of November through February will be dependant upon the amount of rainfall received during the year and application during the months of November and December will be simply to use up the treated wastewater for those months. Supplemental irrigation water will be supplied from six water sources including four reservoirs, a sump, and a surface water right from the nearby Soda Creek. These water sources currently supply irrigation to the vineyards. The Order requires the Discharger to submit a *Nutrient Management Plan* to ensure adequate nutrient loading and prevent constituents of concern from exceeding background groundwater quality.

#### Solids Disposal

The residual solids generated at the winery include grape pomace (stems, seeds, and pulp) and lees (solids remaining in the unfermented juice and sediment remaining after fermentation). Pomace will be spread and disced into the vineyard soils on a daily basis as a supplemental nutrient, weather permitting or hauled offsite to an approved disposal or reclamation facility. Lees will be collected onsite and transported to an offsite facility for wine recovery.

#### Background Groundwater Quality

Groundwater conditions have been investigated and are based on a compilation of ground and surface water analytical data presented in the *Waste Discharge Report, Geology and Hydrogeology* dated 4 August 2009 submitted by Youngdahl Consulting Group, Inc. (Youngdahl) on behalf of the Discharger.

The winery is served by a production well, C-1, drilled into a deeper fractured rock aquifer located on a ridgeline in the eastern corner of the property. Water quality data indicated that the levels of the analyzed constituents meet the water quality goals, except in the case of TDS. TDS concentration was found to be 510 mg/L.

Groundwater conditions were based on two samples, a single surface and groundwater sample collected by Youngdahl and a compilation of analytical data from samples collected in four sampling events from 27 May 2005 to 9 July 2009. All surface water samples were taken from the irrigation water sources currently used to irrigate the vineyards. The irrigation water sources are onsite impoundments that are adjacent to the LAAs. Surface and groundwater quality was found to meet the water quality goals, except in the case of coliform bacteria and TDS. 1,600 MPN/100ml for total coliform was found in the surface water sample collected on 9 July 2009. Since coliform bacteria were not detected in any of the other samples collected that day, it appears that the presence of the bacteria may be an isolated case. The current irrigation source waters have an average TDS concentration of 422 mg/L with a range from 237 mg/L to 563 mg/L. The single groundwater sample obtained had a TDS concentration of 390 mg/L.

The Discharger states that there is no known groundwater table within the canyon floor or producing wells except for areas with springs and shallow flows, and therefore requests to waive the groundwater monitoring requirement. Youngdahl states in a letter dated 22 June 2010, that the Great Valley Sequence rocks underlying the area of the vineyards in Soda Valley are unlikely to contain significant groundwater resources. The alluvium of Soda Valley contains very limited groundwater that most likely occurs in isolated pockets of porous materials bounded by low permeability sediments. The Order requires the Discharger to submit a *Site Specific Conditions Workplan and Report* that shall present the protocol and methodology for the ongoing verification of the absence of groundwater and the Discharger's antidegradation assertions, and describe an alternate method of verifying irrigation using treated wastewater is protective of groundwater quality and in compliance with the requirements of the Order. Background groundwater quality shall be established using the methods proposed in the *Site Specific Conditions Workplan*.

#### Stormwater

All wine making processes occur within a building and wastewater storage is within an enclosed storage tank. The Discharger does not anticipate any stormwater mixing with process wastewater and has submitted a Notice Non-applicability (NONA) for compliance with the Industrial Activities No. 97-03-DWQ Storm Water General.

Associated with the construction of the new winery building, there is an active Storm Water Pollution Prevent Plan (SWPPP) and Notice of Intent on file (WDID# 228C353570). A revised SWPPP will be submitted to include the construction activities associated with the wastewater pretreatment area and conversion of the existing agricultural building to a winery

#### Site Specific Conditions

Land use in the vicinity of the site consists of vineyards. The winery is located within the Coast Range Geomorphic Province consisting of a sequence of northwest-trending mountains and valleys, aligned with and adjacent to the California coastline. Field observations of the bedrock exposures at the property were composed of very closely fractured, moderately to highly weathered beds of gray, fine-grained silts, sands, and clays. The valley floors are composed

of silty sands. The steep western and eastern edge of the site is composed of silty sands and clayey sands and silts, respectively. The intermediate slope areas between the valley and the steep ridges are composed of fat clays.

The winery facility is not located within the Federal Emergency Management Agency (FEMA) 100-year flood zone. Based on information from the Saint Helena NE, Station No. E30 7649 00, the mean annual rainfall is approximately 40.0 inches, the 100-year return annual precipitation is 62.4 inches, and the annual evaporation is 61.61 inches.

#### Basin Plan, Beneficial Uses, and Regulatory Considerations

Surface water drainage is to an unnamed creek and Soda Creek that merge together near the easterly end of the property and intersects Capell Creek, a tributary to Lake Berryessa. The *Water Quality Control Plan for the Sacramento River and San Joaquin River*, Fourth Edition (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. For example, waters designated as municipal and domestic supply must meet the Maximum Contaminant Levels (MCLs) for drinking waters. The Basin Plan sets forth the applicable beneficial uses (municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

#### Antidegradation

The antidegradation directives of State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan.

Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Regional Board to evaluate and fully characterizes:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degree of degradation below water quality objectives.

In allowing a discharge, the Regional Board must comply with CWC Section 13263 in setting appropriate conditions. The Regional Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Regional Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

The Discharger has prepared an Antidegradation Analysis that included the characterization of the existing groundwater quality over a limited part of the facility using data from a single shallow groundwater monitoring well. Supplemental surface water grab samples representing the current irrigation water sources were sampled and analyzed. The winery is supplied by a production well, located in the eastern corner of the property, with a TDS concentration of 510 mg/L, higher than the agricultural water quality goal of 450 mg/L. The existing irrigation source water contains an average TDS concentration of 422 mg/L (ranging from 237 mg/L to 563 mg/L). Best Practical Treatment and Control (BPTC) measures will be implemented with respect to salinity issues. Based on the proposed anaerobic treatment process to reduce the BOD found in winery wastewater, BPTC measures with respect to salinity, and the crop nutrient uptake of potassium, the Discharger anticipates the applied treated wastewater with a TDS concentration of 390 mg/L (less than both the water quality limits and the average existing irrigation water quality). The Discharger has approximately 104 acres of LAAs. The harvested crops of vines and cover crops of grasses have a total nutrient uptake of approximately 365 lb/ac/yr and 775 lb/ac/yr, respectively, based on information obtained from *The Western Fertilizer Handbook*. The proposed Waste Discharge Requirements (WDRs) will establish effluent and groundwater limitations that are protective of groundwater quality and limit land application of nitrogen to agronomic rates. Wastewater application loading rates will be based on the concentration of waste constituents added to the soil that is approximately equal to the concentrations expected to be taken up by the vines or cover crop.

The Discharger has made the argument that the use of winery wastewater to irrigate crops in place of surface and groundwater supply is a benefit to the people of the State. The Discharger has stated that the winery is supplied by well water that is higher than the water quality objectives for TDS; the vineyards are currently irrigated with raw irrigation water from various surface water impoundments with a higher TDS concentration than that of the water quality objectives, treated wastewater after crop nutrient uptake will meet the water quality objective for TDS, the facility will provide additional jobs (including 8 full time, 2 part time, and 2 seasonal jobs) to the area, and is an economical benefit to the equipment and transportation industries.

#### Title 27

Title 27, CCR, Section 20005 et seq. ("Title 27"), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is acceptable under Title 27 regulations.

The discharge of wastewater and the operation of storage facilities associated with a wastewater application can be allowed without requiring compliance with Title 27 only if groundwater degradation complies with the Basin Plan, Resolution No. 68-16 (Antidegradation Policy), and does not violate any water quality objectives.

Based upon available information this discharge meets the requirements for an exemption from the requirements of *Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (Title 27) based on the following.

- a. The storage tank is exempt from Title 27 pursuant because the Regional Water Board has issued waste discharge requirements.
- b. The discharge is in compliance with the Basin Plan. Studies submitted by the Discharger conclude that compliance with effluent limits and management practices in these WDRs will achieve compliance with the Basin Plan. As this facility does not currently exist as proposed in the Order, wastewater characterization and management practices were developed based upon best professional judgment. Groundwater quality was characterized over a limited part of the facility using data from a single shallow groundwater monitoring well. Supplemental surface water grab samples from the irrigation source waters were analyzed.
  - i. The Discharger has prepared an Antidegradation Analysis. Based on the proposed anaerobic treatment process, BPTC measures with respect to salinity, and the nutrient uptake capacity of the vines, TDS concentration in the treated wastewater is anticipated to be less than 390 mg/L.
  - ii. The Discharger will have a total of 104 acres of LAAs available for irrigation with treated wastewater.
  - iii. The Discharger is required to implement source control in the winery, which will minimize the salinity of the discharge.
  - iv. The Discharger is required to submit a *Nutrient Management Plan* and a *Site Specific Conditions Workplan and Report*.
- c. The wastewater does not need to be managed according to Title 22 CCR, Division 4.5, and Chapter 11, as a hazardous waste.

California Environmental Quality Act (CEQA)

A Mitigated Negative Declaration (MND) was approved by the Napa County Conservation, Development & Planning Department on 21 December 2007 for the construction of the winery facility to include an aerated wastewater treatment pond per provisions of the California Environmental Quality Act (CEQA). The following mitigation measures were identified.

- a. The Discharger shall submit to the County of Napa Public Works Department a pre and post construction Storm Water Pollutant Elimination Permit for review, approval, and monitoring.
- b. The Discharger shall submit a grading plan that includes erosion control measures for the temporary and final cave spoil location.

An Addendum to the MND was approved by the Napa County Conservation, Development & Planning Department on 21 June 2010 for the installation of a pretreatment facility and 100,000 gallon storage tank in lieu of an aerated wastewater treatment pond.

#### Effluent Limitations

Effluent limitations for BOD, TDS and Total Nitrogen are included in the WDRs. Wastewater loading limits for the LAAs are included for Biochemical Oxygen Demand (BOD). The BOD limit is intended to minimize the possibility of odors being generated by the land application. The BOD limits are 300 lbs/ac/yr as a daily maximum.

The Total Dissolved Solids (TDS) limit is intended to minimize degradation of groundwater with respect to salinity. TDS limits for the LAAs are based on the water quality of the winery supply water, treated wastewater quality, the existing irrigation supply water, and the available land application area.

Total Nitrogen limits for the LAAs are based on the nitrogen uptake values of the grape vines and cover crops.

#### Best Treatment Technology and Control

Given the character of food processing wastewater, slow rate land treatment or secondary treatment technology is generally sufficient to control degradation of groundwater from decomposable organic constituents.

Food processing wastewater typically contains nitrogen in concentrations greater than water quality objectives. The Discharger anticipates wastewater with little nitrogen present (ranging from 0 – 5 mg/L and less than 0.37 lb/ac/yr). Groundwater degradation by nitrogen can be controlled by an appropriate screening, settling, and slow rate land application with cropping activities when crops are harvested and removed from the LAAs.

A discharge of wastewater that overloads soils with nutrients and organics can result in anaerobic conditions in the soil profile, which in turn creates organic acids and decreases soil pH. Under conditions of low soil pH (below 5), iron and manganese compounds in the soil can solubilize and leach into groundwater. Overloading the land application areas is preventable. The soil is expected to provide adequate buffering of acidic or basic wastewater.

The WDRs includes Discharge Prohibitions, Specifications, Effluent Limitations, and LAA Requirements that will prevent nuisance conditions and/or overloading the land application areas.

### Monitoring Requirements

Section 13267 of the CWC authorizes the Regional Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment civil administrative liability where appropriate.

The proposed WDRs include wine production, wastewater effluent, land application areas, water softener brine, and solids monitoring. In order to adequately characterize wastewater, the Discharger is required to monitor for pH, BOD, dissolved solids (TDS and FDS), Electrical Conductivity (EC), nitrogen, sodium, chloride, and standard minerals.

Title 27 regulations pertaining to groundwater monitoring and the detection and characterization of waste constituents in groundwater have been in effect and successfully implemented for many years. No regulation currently specifies similar criteria more suitable for a situation where extensive land application of food processing wastewater occurs. It is appropriate that the Title 27 groundwater monitoring procedures be extended and applied on a case-by-case basis under Water Code Section 13267.

The Discharger has requested that the groundwater monitoring network requirement be waived for the Order based on the following:

- a. The Great Valley Sequence rocks underlying the area of the vineyards in Soda Valley are unlikely to contain significant groundwater resources.
- b. The alluvium of Soda Valley contains very limited groundwater that most likely occurs in isolated pockets of porous materials bounded by low permeability sediments.
- c. The vineyards have been irrigated since the 1970's with water containing higher TDS concentrations than the proposed reclaimed water.
- d. The proposed treated wastewater irrigation system will have a meter control system and will be operated seasonally thus limiting the potential for irrigation water to impact the limited (if present) groundwater resources.
- e. The application of treated wastewater to the vineyards is highly unlikely to have an adverse impact on the groundwater resources.

Groundwater monitoring will not be required unless requested by the Executive Officer based on future effluent monitoring results. In lieu of a groundwater monitoring network, the Monitoring and Reporting Program within the Order requires the Discharger to submit an annual *antidegradation evaluation* to verify the Discharger's assertions of no degradation following the application of treated wastewater to the LAAs and confirm compliance with the requirements of the Order.

The WDRs includes discharge prohibitions, discharge specifications, effluent limitations, and groundwater limitations. Background groundwater quality values shall be updated annually



based on the methods proposed in the *Site Specific Conditions Workplan*. Discharger will be required to monitor the winery wastewater effluent, and if concentrations exceed water quality objectives, than Regional Water Board staff will re-evaluate the need for groundwater monitoring. If effluent monitoring shows that the discharge has the potential to cause groundwater degradation, then the Discharger may be required to monitor groundwater quality, cease the discharge, change the method of disposal, and/or take other actions as necessary to comply with Resolution No. 68-16.